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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Pisharody *et al.*

Confirmation No.: 9522

Serial No.: 09/970,087

Group Art Unit: 1634

Filed: October 2, 2001

Examiner: Jeffrey Norman Fredman

For: ELECTRONIC DETECTION OF
BIOLOGICAL MOLECULES USING
THIN LAYERS

Attorney Docket No.: 11210-010-999
[Formerly 302-000110US]

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56 and 1.97

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

In accordance with the duty of disclosure imposed by 37 C.F.R. § 1.56 and § 1.97 to inform the United States Patent and Trademark Office of all references coming to the attention of each individual associated with the filing or prosecution of the subject application, which are or may be material to the patentability of any claim of the application, Attorneys for Applicants hereby invite the Examiner's attention to references AA-CR listed on the attached revised form PTO 1449 entitled "List of References Cited by Applicant." Copies of references AA-CR are submitted herewith. Applicants respectfully request that the Examiner review all the listed references and that they be made of record in the file history of the above-captioned application.

Identification of references listed on PTO Form 1449 is not to be construed as an admission of Applicants or attorneys for Applicants that such references are available as "prior art" against the subject application.

Applicants believe that no fee is required with the submission of the enclosed Information Disclosure Statement because the Information Disclosure Statement is being filed before the mailing of the first Office Action on the merits; however if any fee is required, the Commissioner is authorized to charge any required fee to Pennie & Edmonds LLP Deposit Account No. 16-1150. A copy of this sheet is enclosed for accounting purposes.

Respectfully submitted,

Date: August 20, 2003

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Express Mail No. EV 313 841 594 US

LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. 11210-010-999	APPLICATION NO. 09/970,087
	APPLICANT Pisharody <i>et al.</i>	
	FILING DATE October 2, 2001	GROUP 1744

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	5,252,294	10-12-93	Kroy et al.			
	AB	5,466,575	11-14-95	Cozzette et al.			
	AC	5,475,341	12-12-95	Reed			
	AD	5,601,980	02-11-97	Gordon et al.			
	AE	5,632,957	05-27-97	Heller et al.			
	AF	5,846,708	12-08-98	Hollis et al.			
	AG	5,653,939	08-05-97	Hollis et al.			
	AH	5,945,832	08-31-99	Harvey III et al.			
	AI	6,060,023	05-09-00	Maracas			
	AJ	6,063,573	05-16-00	Kayyem			
	AK	6,071,699	06-06-00	Meade et al.			
	AL	6,087,100	07-11-00	Meade et al.			
	AM	6,090,933	07-18-00	Kayyem et al.			
	AN	6,096,273	08-01-00	Kayyem et al.			
	AO	6,110,354	08-29-00	Saban et al.			
	AP	6,203,981	03-20-01	Ackley et al.			
	AQ	6,221,583 B1	04-24-01	Kayyem et al.			
	AR	6,221,586 B1	04-24-01	Barton et al.			
	AS	6,245,508	06-12-01	Heller et al.			
	AT	6,261,776 B1	07-17-01	Pirrung et al.			
	AU	6,290,839	09-18-01	Kayyem et al.			
	AV	6,303,316 B1	10-16-01	Kiel et al.			
	AW	6,320,200	11-20-01	Reed et al.			
	AX	6,379,897	04-30-02	Weidenhammer et al.			
	AY	6,395,480 B1	05-28-02	Hefti			
	AZ	6,399,303	06-04-02	Connolly			
	BA	6,429,027 B1	08-06-02	Chee et al.			
	BB	6,458,600 B1	10-01-02	Mirsky et al.			
	BC	6,461,820 B1	10-08-02	Barton et al.			
	BD	6,468,806	10-22-02	McFarland et al.			
	BE	6,479,301	11-12-02	Balch et al.			
	BF	US 2003/0064390 A1	04-03-03	Schüle in et al.			



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				FILING DATE October 2, 2001		GROUP 1744	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	BG	WO 98/19151	May 7, 1998	PCT			
	BH	WO 99/57550	Nov. 11, 1999	PCT			
	BI	WO 01/43870 A2	June 21, 2001	PCT			
	BJ	WO 01/44501 A2	June 21, 2001	PCT			X Abstract
	BK	10-146183	June 2, 1998	Japan			X
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
	BL	ALEXANDER; "Biopoly Money"; Wired Archive 8.06; June 2000.					
	BM	CAI <i>et al.</i> ; "Self-Assembled DNA Networks and Their Electrical Conductivity"; Applied Physics Letters 77; November 6, 2000; pp. 3105-3106.					
	BN	CORBY <i>et al.</i> ; "Studies on Phosphorylation. Part X. The Preparation of Tetraesters of Pyrophosphoric Acid from Diesters of Phosphoric Acid by Means of Exchange Reactions"; Journal of the Chemical Society; April, 1952; pp. 1234-1243.					
	BO	DATTA <i>et al.</i> ; "Current-Voltage Characteristics of Self-Assembled Monolayers by Scanning Tunneling Microscopy"; Physical Review Letters 79; September 29, 1997; pp. 2530-2533.					
	BP	DILL <i>et al.</i> ; "Antigen Detection Using Microelectrode Array Microchips"; Analytica Chimica Acta 444; 2001; pp. 69-78.					
	BQ	ECKSTEIN <i>et al.</i> ; "Oligonucleotide Syntheses by means of 2,2,2-Trichloroethyl Phosphorodichloridate", Angew. Chem. Internat. Edit.; Vol. 6 (1967); No. 11, p. 949.					
	BR	ENGELS; "Electrochemical Removal of Protecting Groups in Nucleotide Synthesis"; Angew. Chem. It. Ed. Engl. 18 (1979), No. 2; pp. 148-149.					
	BS	FAHLMAN and SEN; "DNA Conformational Switches as Sensitive Electronic Sensors and Analytes"; J. Am Chem. Soc. 124; April 2, 2002; pp. 4610-4616.					
	BT	FINK and SCHONENBERGER; "Electrical Conduction Through DNA Molecules"; Nature 398; April 1, 1999; pp. 407-410.					
	BU	GIESE <i>et al.</i> ; "Direct Observation of Hole Transfer Through DNA by Hopping Between Adenine Bases and by Tunneling"; Nature 412; July 19, 2001; pp. 318-320.					
	BV	HIANIK <i>et al.</i> ; "Amperometric Detection of DNA Hybridization on a Gold Surface Depends on the Orientation of Oligonucleotide Chains"; Biochemistry 53; 2001; pp. 199-204.					
	BW	HJORT and STAFSTRÖM; "Band Resonant Tunneling in DNA Molecules"; Physical Review Letters 87; November 26, 2001; pp. 228101-2 through 228101-4.					
	BX	IMOTO <i>et al.</i> ; "Synthesis and Antitumor Activity of <i>N</i> -Acetylmuramyl-L-alanyl-D-isoglutamine 6-Phosphate and Its Lipophilic Derivatives"; Bull. Chem Soc. Jpn. 59 (1986); pp. 3207-3212.					



LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)			ATTY. DOCKET NO. 11210-010-999	APPLICATION NO. 09/970,087
			APPLICANT Pisharody <i>et al.</i>	
			FILING DATE October 2, 2001	GROUP 1744
	BY	IWAKUMA, et al.; "Selective Removal of Protecting Groups Using Controlled Potential Electrolysis"; Journal of the American Chemical Society 94:14; July 12, 1972; pp. 5139-5140.		
	BZ	KASUMOV et al.; "Proximity-Induced Superconductivity in DNA"; Science 291; January 12, 2001; pp. 280-282.		
	CA	KATO et al. "Studies of Organo Sulfur Compounds. II. The Preparation and Reactions of Benzoyl Benzenethiosulfonates"; Bulletin of the Chemical Society of Japan; Vol. 46 (1973), pp. 860-863.		
	CB	KELLEY et al.; "Single-Base Mismatch Detection Based on Charge Transduction Through DNA"; Nucleic Acids Research 27; 1999; pp. 4830-4837.		
	CC	KERR et al.; "Carbohydrates tagged with the $CCO_3(CO)_9$ cluster"; J. Chem. Soc., Dalton Trans.; 1999; pp. 4165-4174.		
	CD	KLEIN et al.; "Ordered Stretching of Single Molecules of Deoxyribose Nucleic Acid Between Microfabricated Polystyrene Lines"; Applied Physics Letters 78; April 16, 2001; pp. 2396-2398.		
	CE	KRUPKE et al.; "Patterning and Visualizing Self-Assembled Monolayers with Low-Energy Electrons"; Nano Letters 2; 2002; pp. 1161-1164.		
	CF	LEE et al.; "Label Free Electrical Detection of DNA Hybridization by Nanogap Junction [MP 022]"; ALA, Small Talk2002, Final Program and Abstracts; July 28-31, 2002.		
	CG	LETSINGER et al.; "Synthesis of Oligothymidylates via Phosphotriester Intermediates"; Journal of the American Chemical Society 91:12; June 4, 1969; pp. 3350-3355.		
	CH	LEWIS et al.; "Distance-Dependent Electron Transfer in DNA Hairpins"; Science 277; August 1, 1997; pp. 673-676.		
	CI	MAIA et al.; "Mild Reductive Cleavage of Tryptophane and Histidine Side-Chain Protecting Groups"; Eur. J. Org. Chem 2001; pp. 1967-1970.		
	CJ	MAHIEU, et al.; "Synthesis of New Thiosulfonates and Disulfides from Sulfonyl Chlorides and Thiols"; Synthetic Communications 16(13); (1986); pp. 1709-1722.		
	CK	MAIRANOVSKY; "Electro-Deprotection - Electrochemical Removal of Protecting Groups"; Angew. Chem. Int. Ed. Engl. 15; (1976); pp. 281-292.		
	CL	NYASSE, et al.; "Synthesis and cathodic cleavage of a set of substituted benzenesulfonamides including the corresponding <i>tert</i> -butyl sulfonylcarbamates; pK_a of sulfonamides"; J. Chem. Soc. Perkin Trans. I; 1995; pp. 2025-2031.		
	CM	OKAHATA et al.; "Anisotropic Electric Conductivity in an Aligned DNA Cast Film"; J. Am. Chem Soc. 120; June 5, 1998; pp. 6165-6166.		
	CN	PARK et al.; "Array-Based Electrical Detection of DNA with Nanoparticle Probes"; Science 295; February 22, 2002; pp. 1503-1506.		
	CO	PORATH et al.; "Direct Measurement of Electrical Transport through DNA Molecules"; Nature 403; February 10, 2000; pp. 635-638.		
	CP	PÜSCHL et al.; "Solution Phase Synthesis of Dithymidine Phosphorothioate by a Phosphotriester Method Using New <i>S</i> -Protecting Groups"; Nucleosides & Nucleotides 16; 1997; pp. 145-158.		
	CQ	TRANS et al.; "Potential Modulations Along Carbon Nanotubes"; Nature 404; April 2000; pp. 834-835.		
	CR	TRIGALO et al.; "Chemistry of Bacterial Endotoxins. Part 4. Synthesis of Anomeric 2-Deoxy-2-[(3 <i>R</i>)-3-hydroxytetradecanimido]-D-glucopyranosyl Phosphate and Pyrophosphate Derivatives Related to 'Lipid A'"; J. Chem. Soc. Perkin Trans. I; 1988; pp. 2243-2249.		



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		APPLICANT Pisharody <i>et al.</i>	
		FILING DATE October 2, 2001	GROUP 1744
	CS	UMEK et al.; "Electronic Detection of Nucleic Acids a Versatile Platform for Molecular Diagnostics"; Journal of Molecular Diagnostics 3; May 2001; pp. 74-84.	
	CT	WARMAN et al.; "DNA: A Molecular Wire?"; Chemical Physics Letters 249; February 9, 1996; pp. 319-322.	
	CU	WATSON et al.; "Technology for Microarray Analysis of Gene Expression"; Current Opinion in Biotechnology 9; 1998; pp. 609-614.	
	CV	WHITESIDES et al.; "Wet Chemical Approaches to the Characterization of Organic Surfaces: Self-Assembled Monolayers, Wetting, and the Physical-Organic Chemistry of the Solid-Liquid Interface" Langmuir 6; 1990; pp. 87-96.	
	CW	YU et al.; "Electronic Detection of Single-Base Mismatches in DNA with Ferrocene-Modified Probes"; J. Am. Chem. Soc. 123; 2001; pp. 11155-11161.	
EXAMINER		DATE CONSIDERED	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			